

Application No. 10/018,662

Abstract

The invention concerns photovoltaic converters that work under high intensity light and provide high efficiency. The converters generate photovoltaic electricity at low costs, which is a very interesting for the photovoltaic industry. They can be also used in thermophotovoltaic systems and remote supply systems via optical fiber. The converter is characterized by the following features: a) its semiconductor layers are made of III-V compounds, b) it is manufactured by the use of photolithography, and c) its size ranges from a few tenths to tens of square millimeters. Other optoelectronic techniques may be used for manufacturing such as wire bonding, separation of the converters on a single wafer by sawing, scribing and cleavage. Its design parameters are estimated by means of multivariable optimization. The situation in which the incident light has the shape of a cone and originates from a medium with any given refraction index is taken into account in the operating conditions.